Please amend the claims as follows.

1.(Canceled)

2.(Canceled)

3.(Canceled)

4.(Canceled)

5.(Canceled)

6.(Canceled)

7.(Canceled)

8.(Canceled)

9.(Canceled)

10.(Canceled)

11.(Canceled)

12.(Canceled)

13.(Canceled)

14.(Canceled)

15.(Canceled)

16.(Canceled)

17.(Canceled)

18.(Canceled)

19.(Canceled)

20.(Currently Amended) A method for pumping a material through a channel comprising the steps of:

providing a microchannel device that includes a substrate having first and second channels disposed therein, said first and second channels being in fluid communication at a channel intersection and containing a first fluidic material;

providing a first membranous material in the first channel;

providing a third channel that is in fluid communication with the first and second channels at the channel intersection;

providing a second membranous material in the third channel; ~~and~~

inducing a hydraulic pressure in the second channel by applying an electrical potential between the first and third channels; and

providing electroosmotic flow in the first membranous material that is greater than electroosmotic flow in the second membranous material.

21.(Canceled)

22.(Canceled)

23.(Canceled)

24.(Canceled)

25.(Canceled)

26.(Canceled)

27.(Canceled)

28.(Canceled)

29.(Canceled)

30.(Canceled)

31.(Canceled)

32.(Canceled)

33.(Canceled)

34.(Canceled)

35.(Canceled)

36.(Canceled)

37.(Canceled)

38.(Canceled)

39.(Canceled)

40.(Canceled)

41.(Canceled)

42.(Canceled)

43.(Canceled)

44.(Canceled)

45.(Canceled)

46.(Canceled)

47.(Canceled)

48.(Canceled)

49.(Currently amended) A device for the manipulation of liquid phase materials comprising:

a substrate;

first, second, and third channels formed on said substrate;

said first, second, and third channels being in fluid communication at a channel intersection;

a first membranous material disposed in the first channel and a second membranous material disposed in the second channel; and

a source of electrical potential operatively connected to the first and second channels for inducing transport of a material in the third channel;

wherein the first and second membranous materials are selected such that electroosmotic flow in the first membranous material is greater than electroosmotic flow in the second membranous material.

50.(Canceled)

51.(Previously presented) A device as set forth in Claim 49 wherein the first membranous material comprises a polymeric material or a porous glass material.

52.(Previously presented) A device as set forth in Claim 49 wherein the first membranous material comprises a channel having a transverse dimension that is similar to the thickness of the electrical double layer.

53.(Previously presented) A device as set forth in Claim 49 wherein the second membranous material comprises a polymeric material or a porous glass material.

54.(Previously presented) A device as set forth in Claim 49 wherein the second membranous material comprises a channel having a transverse dimension that is similar to the thickness of the electrical double layer.

55.(Currently amended) A method for pumping a material through a channel comprising the steps of:

providing a microchannel device that includes a substrate having first, second, and third channels disposed therein, said first and third channels being in fluid communication at a first channel intersection, said second and third channels being in fluid communication at a second channel intersection, and containing a first fluidic material;

providing a first membranous material in the first channel, ~~and~~ a second membranous material in the second channel, and a third membranous material in the third channel; ~~and~~

inducing a hydraulic pressure in the third channel by applying an electrical potential between the first and second channels; and

providing electroosmotic flow in the third membranous material that is greater than electroosmotic flow in the first membranous material.

56.(Canceled)

57.(Canceled)

58.(Canceled)

59.(Currently amended) A method as set forth in Claim ~~55~~ 75 wherein the step of providing the first membranous material comprises providing a polymeric material or a porous glass material as the first membranous material.

60.(Currently amended) A method as set forth in Claim ~~55~~ 75 wherein the step of providing the first membranous material comprises forming at least one channel in the first channel that has a transverse dimension that is similar to the thickness of the electrical double layer.

61.(Currently amended) A method as set forth in Claim ~~55~~ 75 wherein step of providing the second membranous material comprises providing a polymeric material or a porous glass material as the second membranous material.

62.(Currently amended) A method as set forth in Claim ~~55~~ 75 wherein the step of providing the second membranous material comprises forming a channel in the second channel that has a transverse dimension that is similar to the thickness of the electrical double layer.

63.(Currently amended) A method as set forth in Claim ~~56~~ 55 wherein the step of providing the third membranous material comprises providing a polymeric material or a porous glass material as the third membranous material.

64.(Currently amended) A method as set forth in Claim ~~56~~ 55 wherein the step of providing the third membranous material comprises forming a channel in the third channel that has a transverse dimension that is similar to the thickness of the electrical double layer.

65.(Currently amended) A device for the manipulation of liquid phase materials comprising:

a substrate;

first, second, and third channels formed on said substrate;

said first and third channels being in fluid communication at a first channel intersection;

said second and third channels being in fluid communication at a second channel intersection;

a first membranous material disposed in the first channel, ~~and~~ a second membranous material disposed in the second channel, and a third membranous material is disposed in the third channel; ~~and~~

a source of electrical potential operatively connected to the first and second channels for inducing transport of a material in the third channel;

wherein the first and third membranous materials are selected to provide electroosmotic flow in the third membranous material that is greater than electroosmotic flow in the first membranous material.

66.(Canceled)

67.(Canceled)

68.(Canceled)

69.(Previously presented) A device as set forth in Claim 65 wherein the first membranous material comprises a polymeric material or a porous glass material.

70.(Previously presented) A device as set forth in Claim 65 wherein the first membranous material comprises a channel having a transverse dimension that is similar to the thickness of the electrical double layer.

71.(Previously presented) A device as set forth in Claim 65 wherein the second membranous material comprises a polymeric material or a porous glass material.

72.(Previously presented) A device as set forth in Claim 65 wherein the second membranous material comprises a channel having a transverse dimension that is similar to the thickness of the electrical double layer.

73.(Currently amended) A device as set forth in Claim ~~66~~ 76 wherein the third membranous material comprises a polymeric material or a porous glass material.

74.(Currently amended) A device as set forth in Claim ~~66~~ 76 wherein the third membranous material comprises a channel having a transverse dimension that is similar to the thickness of the electrical double layer.

75.(New) A method for pumping a material through a channel comprising the steps of:

providing a microchannel device that includes a substrate having first, second, and third channels disposed therein, said first and third channels being in fluid communication at a first channel intersection, said second and third channels being in fluid communication at a second channel intersection, and containing a first fluidic material;

providing a first membranous material in the first channel and a second membranous material in the second channel; and

inducing a hydraulic pressure in the third channel by applying an electrical potential between the first and second channels; and

providing electroosmotic flow in the first membranous material that is greater than electroosmotic flow in the second membranous material.

76.(New) A device for the manipulation of liquid phase materials comprising:

a substrate;

first, second, and third channels formed on said substrate;

said first and third channels being in fluid communication at a first channel intersection;

said second and third channels being in fluid communication at a second channel intersection;

a first membranous material disposed in the first channel and a second membranous material disposed in the second channel; and

a source of electrical potential operatively connected to the first and second channels for inducing transport of a material in the third channel;

wherein the first and second membranous materials are selected to provide electroosmotic flow in the first membranous material that is greater than electroosmotic flow in the second membranous material.